

REMARKS

Consideration of the above identified application in view of the preceding amendments and following remarks is respectfully requested. Claims 1, 2, 5-8, 10-21, and 31-39 are pending in this application.

I. Appendix of a Declaration

Attached as an Appendix to this Amendment is a Declarations under 37 C.F.R. § 1.132 in support of the following remarks.

II. Claim Rejections - 35 U.S.C. § 103

In the Office Action, Claims 1, 2, 5, 6, 8, 10-21, and 31-39 were rejected under 35 U.S.C. § 103 (a) over PCT Application Pub. No. WO 03/005764 to Browne et al. The Examiner's grounds for rejection are herewith traversed, and reconsideration is respectfully requested.

a. Browne does not teach or suggest the claimed invention

In paragraph 6 of the office action the Examiner argues that "Browne does not explicitly teach a specific hardness of the coupler, however Browne does teach that the hardness of the material must be considered to achieve the desired acoustical coupling (page 2, lines 27 to 29; page 3, lines 1 to 2). Therefore it would have been obvious to one of ordinary skill in the art ... to select an appropriate hardness to realize the desired acoustical coupling including a coupler having a Shore A hardness of no more than 20".

Considering the referenced portion of Browne closely, Browne states "[t]he membrane is suitably formed of an elastomeric material, for example polyurethane or a silicone rubber, and the portion of the membrane between the foot and the surface may be of either the flexible elastomeric material or a harder or softer portion of different material from the rest of the membrane to achieve the desired acoustic coupling" (emphasis added). Thus, Browne provides

no clear direction to the skilled reader to vary the hardness of the elastomeric material itself but rather a direction to use a harder or softer portion of different material. In other words, Browne directs the reader to use a different material and to vary the hardness of the different material.

Browne is unclear as to whether or not the 'different material' is a resilient (e.g. elastomeric) material as is required by claim 31 let alone make any mention of the specific hardness. This understanding of the prior art is further endorsed and supported by the attached Declaration of Ian Hynd (Hynd Declaration) at paragraph 6.

In contrast, the present invention as defined in claim 31 comprises an actuator and a coupler formed of a resilient material that is configured to couple movement of the actuator to an acoustic radiator to cause the acoustic radiator to operate in a distributed mode fashion, i.e. in a panel-form manner. Claim 31 recites that the coupler has a Shore A hardness of no more than 20. The applicant has discovered after much experimentation that a coupler having a Shore A hardness of no more than 20 provides for effective and efficient conversion of the pistonic (i.e. to and fro) movement of the actuator into distributed mode movement of the acoustic radiator. Browne simply does not teach or suggest this limitation of claim 31 that the coupler has a Shore A hardness of no more than 20. Furthermore, Browne provides no suggestion or hint that movement of the actuator could be coupled to the acoustic radiator by a coupler having a Shore A hardness of no more than 20. Thus, it is submitted that the present invention as defined in claim 31 is non-obvious over the content of Browne.

b. The claimed invention is not obvious

“Recognizing that the inference of obviousness drawn from the prior art disclosures is only prima facie justification for drawing the ultimate conclusion of obviousness that the claimed invention is unpatentable under 35 U.S.C. 103, it is imperative that...secondary considerations also be evaluated in determining the final validity of that legal conclusion” Graham v. John Deere Co., 383 U.S. 1 (1966). Such secondary considerations include unexpected results. Id.

In the attached Hynd Declaration, the applicant has provided two graphs that show the performance of the coupler as recited in Claim 31 over a range of Shore A hardness. As noted in the Hynd Declaration, the top graph is of sound pressure level, which is a measure of efficiency, versus Shore A hardness between 1 and 30. The bottom graph is of total harmonic distortion (THD) versus Shore A hardness between 1 and 30. A high sound pressure level and a low total harmonic distortion reflect good performance.

As can be seen from the graphs and in particular from the graph for total harmonic distortion (THD) there is a step change in improvement of performance at 20 Shore A hardness. The graphs contain what the applicant believes to be experimental inaccuracies (e.g., in the values for THD at 22, 24, 26 and 28 Shore A) and anomalous points (e.g., in the values for THD at 10 and 16 Shore A) (see para. 7 of the Hynd Declaration). Irrespective of the experimental inaccuracies and the anomalous points, an unexpected step change can be seen clearly at 20 Shore A hardness (see para. 8 of the Hynd Declaration).

The graphs show that there is a step change in performance of driver apparatus according to claim 31, which comprises a coupler having a Shore A hardness of no more than 20, when driving a distributed mode (DM) loudspeaker compared with driver apparatus comprising a

coupler having a Shore A hardness of more than 20. The statistical change is significant (see para. 8 of the Hynd Declaration). Such a step change in improvement represents more than merely selecting an appropriate hardness to realize a desired acoustical coupling, e.g., as might be the case were there to be a linear relationship between hardness and each of THD and sound pressure level. Such a change is a significant and practical advantage that is unexpected to one of ordinary skill in the art (see para. 8 of the Hynd Declaration).

In view of the discussion above, which is supported by the Hynd Declaration attached hereto, Claim 31 and each of the claims depending therefrom are not rendered obvious, for at least the additional reason of unexpected results, and withdrawal of the rejection under 35 U.S.C. §103 (a) is respectfully requested.

III. Conclusion

Any additional fees or overpayments due as a result of filing the present paper may be applied to Deposit Account No. 04-1105. It is respectfully submitted that all of the claims now remaining in this application are in condition for allowance, and such action is earnestly solicited.

If after reviewing this amendment, the Examiner believes that a telephone interview would facilitate the resolution of any remaining matters the undersigned attorney may be contacted at the number set forth herein below.

Respectfully submitted,

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